moengage

Push Notifications Report 2019

A data-intensive report on the state of push notifications

What's inside this report?

Note to marketers

We live in a mobile-first world. Day or night, we can't help checking our smartphones. According to a Google report, over two-thirds of smartphone users check their phone within 15 minutes of waking up. As smartphones continue to shape lifestyles and consumer behavior, companies across verticals are using push notifications to get noticed and get ahead.

In this report, we analyzed our client data to understand the factors that affect the success of push notifications and their delivery rates. Our data source includes campaigns run by MoEngage customers across 35+ countries who use the platform to drive their push notification campaigns.

What are push notifications?

Push Notifications are short pop-up like messages used by companies to get the attention of customers, commonly through web browsers or apps. Mobile push notifications are a great way to drive user engagement. Companies use mobile push notifications to send targeted, relevant messages based on specific customer behavior.

Why use mobile push notifications?
As per Google, nearly 2/3 of smartphone users are likely to purchase from companies whose mobile sites or apps customize information to their location. Through push notifications, companies can send highly personalized messages to users based on their location, time, and activity. This level of personalization

Up to 20% App opens are influenced by push notifications.

Up to 45% CTR observed for push notification campaigns.

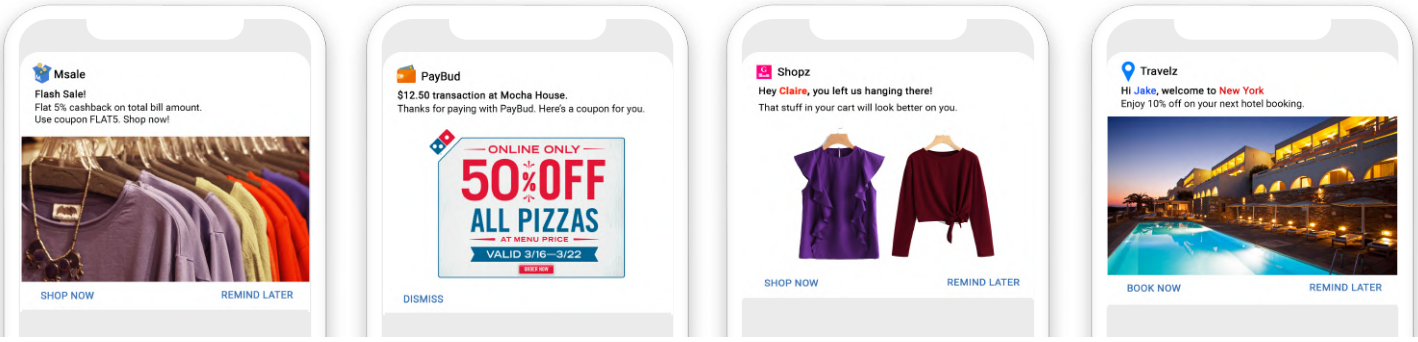
Up to 15% E-commerce conversions are driven by notifications.

Up to 4X Engagement for push notifications that are personalized, when compared to general/ batch push notifications.

What are the types of mobile push notifications

Push notifications can be used to meet a variety of user engagement needs on your app. Here are some use-cases, where Push notifications can be used to drive better engagement and conversions:

- Content / Offers Communication
- Transactional Alerts
- Cart / Browse Abandonment
- Geo-targeted Notifications



The most effective type of push notification

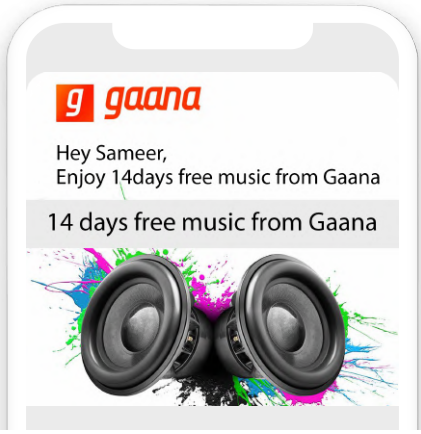
Users have different needs at different points in their user journey. Different types of notification work at different points of their user journey. As a beginner, users may look for more information on how to use the app. As they explore the app further, they will look for updates that are relevant to their specific interests or app features.

The most effective type of push notification thus depends on the specific customer use case that you target. The right kind of push notifications can help marketers nurture new users into power users successfully. Here are some types of push notifications that are commonly employed by brands to converse with their users:

1. Informative notifications
2. Geolocation notifications
3. Re-engagement notifications
4. Promotional notifications
5. Recurrent push notifications
6. Notification for ratings

1. Informational notifications

Informative notifications are generally used for important updates from the app like new features, alerts on activity, reminders etc. They are mostly in text format. Here are some use cases when informative notifications can be used:



App updates: These are messages that inform users about major app updates that can improve the app experience like a new feature or new version of the app.

Reminders: These messages remind users about opportunities of interest based on their recent actions.eg. meeting alerts on a calendar.

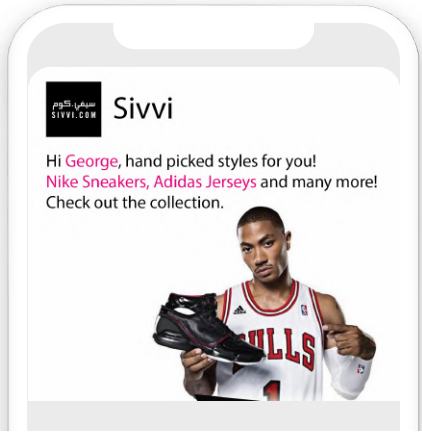
Alerts: They notify users about activities directly related to them. e.g. alerts for comments on social media apps.

2. Geolocation notifications

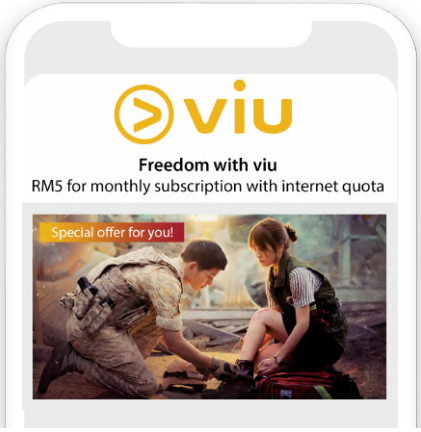
Geolocation notifications are triggered when a user enters or leaves a location. These messages can alert users about location-specific services, offers, and updates. For instance, a user who has just moved to a new location may get a push notification message for mobile data roaming packs specific to that location. These notifications work best for:

- Location-based promotions
- Location-based discounts
- Location-based loyalty and reward points

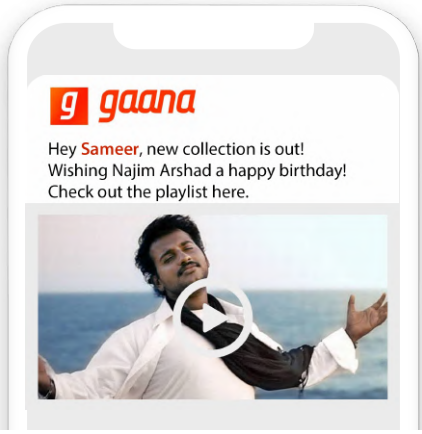
3. Re-engagement notifications
They are used to motivate users to use the app based on their activity. e.g milestones for Google reviews. Re-engagement notifications that are interactive can drive the attention of users back to the app. With rich push notifications that are personalized, marketers can remind users about why they downloaded the app in the first place.



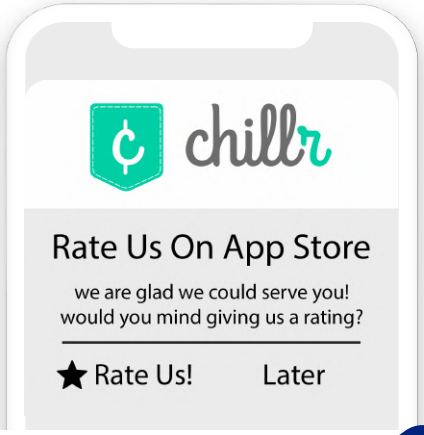
4. Promotional notifications
They are time-bound messages that encourage users to buy a product or use a service. e.g a sale offer. These recommendations can be based on usage history or on topical events and festivals. Personalization and campaign send time are crucial to the success of promotional notifications.



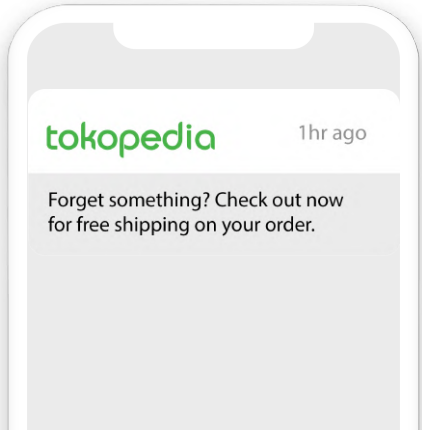
5. Recurrent push notifications
They are sent periodically to highlight a recurring offer or service. e.g. editorial picks for the week. E-commerce apps often use these timely notifications to send updates to users at specific times. Gaana, for instance, sends a weekly playlist of top songs to app users.



6. Notification for ratings or survey
These are interactive messages that are used to collect user feedback. This kind of notification can be used to gather reviews and feedback to improve the overall user experience. Marketers can ask feedback for the app itself or for the rating of a particular activity like a purchase.



7. Order push notifications
Order notifications provide users with tracking details and other information about their orders. They are commonly used by e-commerce apps and delivery apps to share order confirmations, delivery status, and digital receipts.



How to make push notification work for you

The average smartphone user interacts with around 30 apps in a month and has access to about 9 apps a day. People using smartphones receive on an average 60+ push notifications in a single day. To get the attention of users back to the app, marketers need to employ an omnichannel promotional campaign with relevant, personalized push notifications based on user behavior. Here are some best practices to get the most out of your push notification campaign.

Best practices for push notification campaigns
The right message to the right audience at the right time

1. The right audience: The first step is to specify or define the audience to whom the push notification is intended. Start by segmenting or grouping users who exhibit similar attributes.

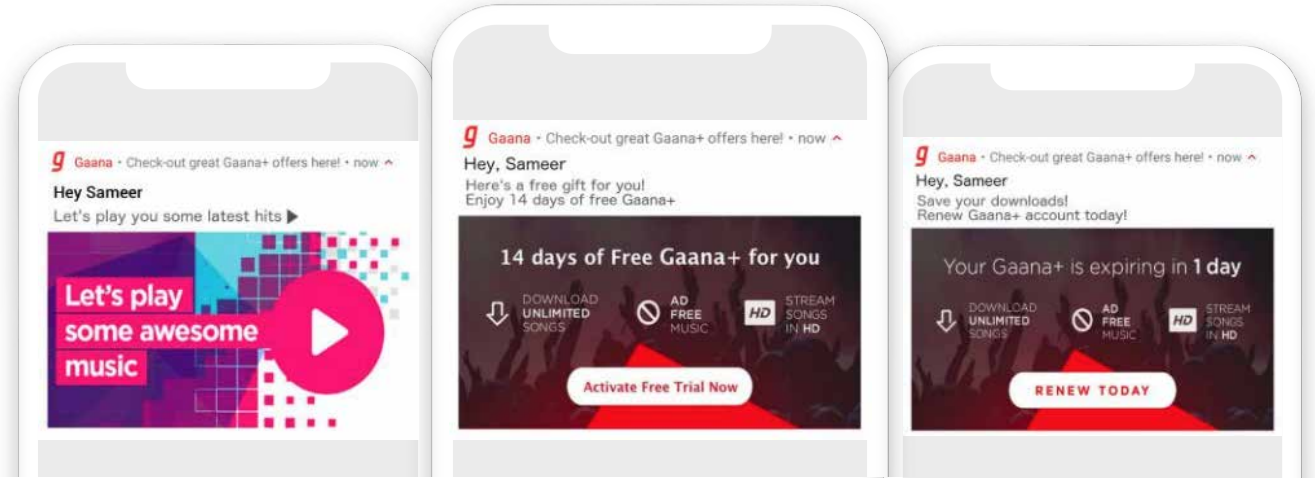
2. The right message: The next step is to create personalized messages that match the needs of the target audience. The more relevant and customized the messages are, the more engagement you can drive.

3. The right time: Marketer should also define the trigger or right time to send the notifications. This depends on user behavior.

1. The right audience: Segmentation and personalization

If the campaign is personalized and targeted to a particular set of users, the impressions and conversions will be more. To segment user data into relevant groups and personalize notifications, marketers need to first track and understand customer behavior. Based on customer mobile moments, marketers can send tailor-made push notifications that match customer needs. Through segmentation and personalization, brands like Gaana have achieved up to 3X engagement in just

10% Daily Active Users driven through MoEngage Push Notifications.
2/3 Users who engage with push notifications, play a song on the app



Day 1:
Play a song

Day 2:
Trial Gaana+

Day13:
Renew Gaana+

1.a Performance of segmented campaigns v/s broad campaigns
In our analysis, we found that the CTR's for segmented campaigns were 30% better than non-segmented or blast campaigns.

1.b Performance of personalized campaigns v/s non-personalized
Companies can achieve greater success with push notifications by sending relevant messages that match the needs and preference of users. In our analysis, we found that personalized campaigns performed 50% better than non-personalized campaigns.

2. The right message: What works?

To create winning content, brands have to understand the users and their needs. Marketers need to send push notifications that are customized to match the needs and preferences of users. Targeted push notifications that are personalized can get up to 4X Engagement when compared to general/ batch push notifications.

2. a Supported media formats
Rich push notifications like gifs and images are compatible with iOS 10 and Android 5.1+ devices. Based on their target audience, marketers should use the most appropriate format. Here are some popular formats of notifications:

- Interactive action buttons
- Alert boxes
- Audios
- Images
- Gifs
- Videos

2.b Performance of rich push v/s plain push
With rich push notifications, marketers can send creative and engaging messages to users. Marketers can entice users with product images and videos and drive engagement. In our analysis, we found that rich push notifications with images had a higher open rate of up to 60% in comparison to plain push.comparison to plain push.

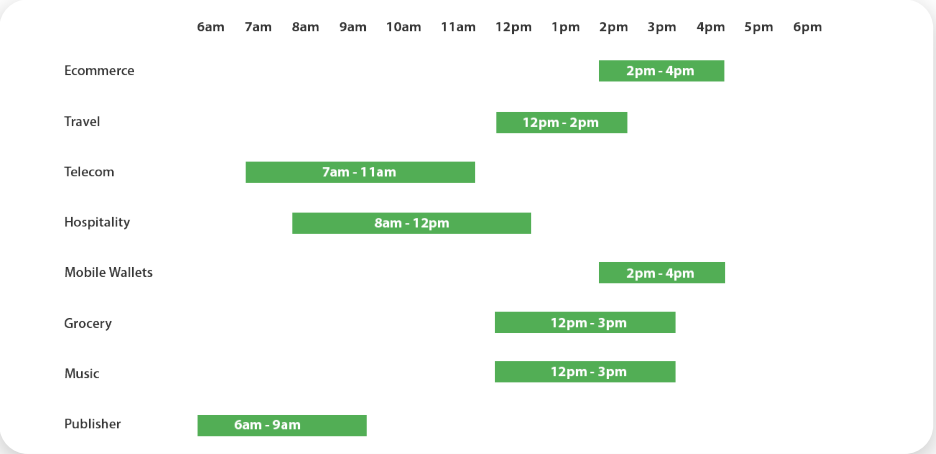
2.c Content optimization through AI-powered multivariate campaigns
With data-driven insights, marketers can successfully identify content formats that create the most engagement. In our study, we found that AI-powered multivariate campaigns fared better than general campaigns. Multivariate campaigns on MoEngage compares the performance of different formats of content and then optimizes the campaign for the best performing one.

3. The right time:
The best time to send push notifications

Marketers can increase delivery rates and engagement by sending notifications at the right time when their users are most active on the app. The best time to send the notification depends on the user behavior and the app category. Most of the companies prefer to send push notifications between 7am- 12pm on weekdays.

Overall findings
- The best time to send: 7 am to 12 pm
- The worst time to send: 6 pm to 12 pm
- The ideal word length: Less than 15 words in push campaigns

Industry wise best



3. a Smart-trigger push v/s general push
Marketers can drive more engagement by sending messages at the right time when users are most like to view and interact with the app. Marketers can time their push notifications more accurately with automation platforms like MoEnagage. In our study, we found that smart trigger push notifications had greater open rates than general push notifications.

Up to 50% open rates observed in Smart Trigger campaigns

Up to 30% open rates observed in General Push

The most important best practice of them all: Analyse what's working
When it comes to push notifications, there is no one size fits all solution. Every app is unique with unique use cases. The best bet for marketers to succeed is to experiment and optimize their campaigns based on user behavior. The more variables you experiment with, the more data and insights you get.

With powerful analytics and automation tools, marketers can identify patterns across variables like interaction levels, devices that users are active on, their last activity etc to drive successful push notification campaigns.

Why some of your users don't receive push notifications?

Not all push notifications that are sent reach the end users. While cloud messaging platforms accept the notifications, it fails to send them to devices that are inactive or not connected to the internet. The notifications that are successfully sent to GCM (Google Cloud Messaging) are not delivered to the end users due to a multitude of factors like OEM restrictions, network issues, and other factors that cut off the device from GCM service.

Probable reasons why you don't have a 100% delivery rate:
1) Notifications may be blocked by the user at OS Level.
2) Device specific issues that disallow notifications.
3) Network issues due to which users aren't connected to GCM.
4) Time to Live for the campaign expires before delivery.
5) The gap from GCM in marking token as inactive.
6) Security firewalls in corporate setups that prevent notifications.

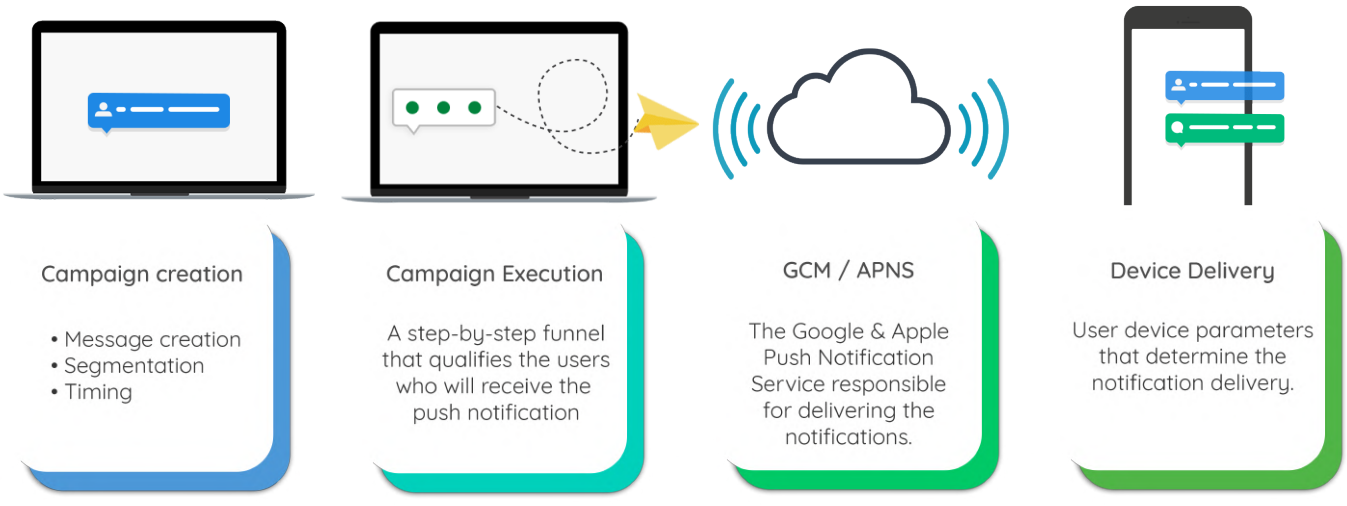
How are push notifications delivered

1) Execution of campaign: All mobile devices have push tokens. A Push token is a unique identifier issued by cloud messaging platforms such as APNS and FCM that help marketers to communicate with the end users of the app. After identifying the reachable users, MoEngage identifies the eligible users with the help of frequency capping (the number of messages that a user will receive during a specific time frame) and determines the active devices that will receive the message.

2) Cloud network delivery: Cloud messaging platforms such as GCM, FCM, and APNS receives the marketer's campaign and takes over the delivery process from this stage.

3) Device delivery: The cloud messaging platforms then relay the message from the marketing partner to the end user's device.

4) Impression creation: Once the user receives the notification, the MoEngage Software Developer's Kit (SDK) informs the server about it – this is called an Impression.



How to measure delivery rate for Android
Delivery rate for push notifications is measured as the ratio of impressions to the number of messages successfully sent.

$$\frac{\text{Impressions}}{\text{Successfully Sent}}$$

Successfully Sent: Successfully sent is the count for the number of push notifications that are accepted by GCM/APNS

Impressions: Impressions are the count for the number of user devices that have received the notification sent by the marketer.

Our research methodology for analyzing delivery rates

To understand why notifications successfully sent to GCM are not delivered to all users, we analyzed our client data including sent numbers and notification impressions from client's devices. Post analysis across clients from different verticals, we divided our results into two themes:

1) User Activity: To understand if there is a correlation between the user activity (how recently your user visited your app) and notification deliverability.

2) User Device: To understand if there is a correlation between the device model (Mobile device used by your users) and notification deliverability.

Factors that affect push notification delivery rates
- How user activity impacts delivery rates
- How user device impacts delivery rates
- Other factors that impact delivery rates

How user activity impacts delivery rates

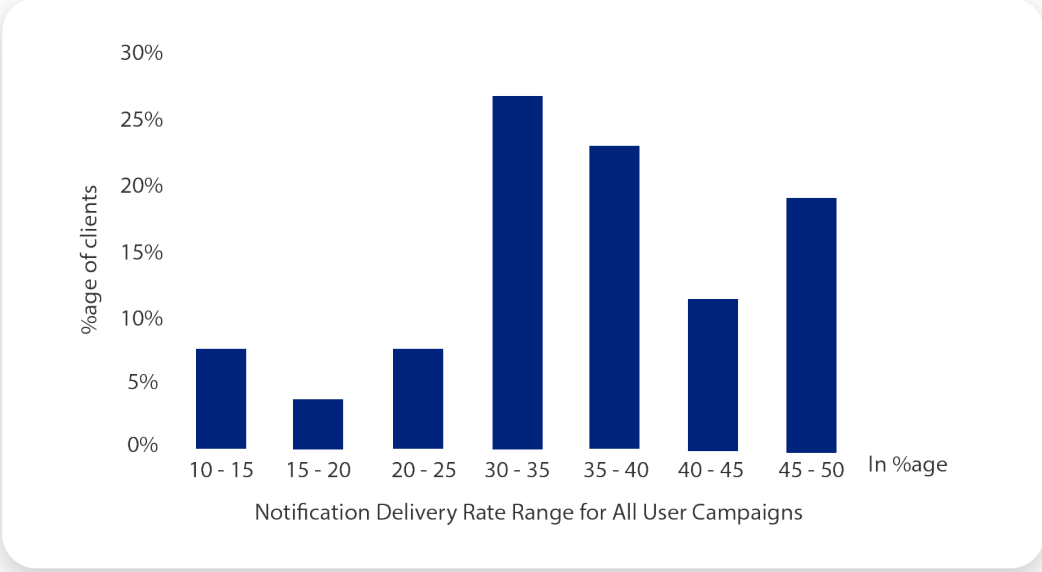
We analyzed the delivery rates based on campaign segmentation, user's activity, business verticals, and recency of app usage.

1) Segmentation based on user behavior: The success of push notifications depends greatly on the level of personalization and relevance of the message.

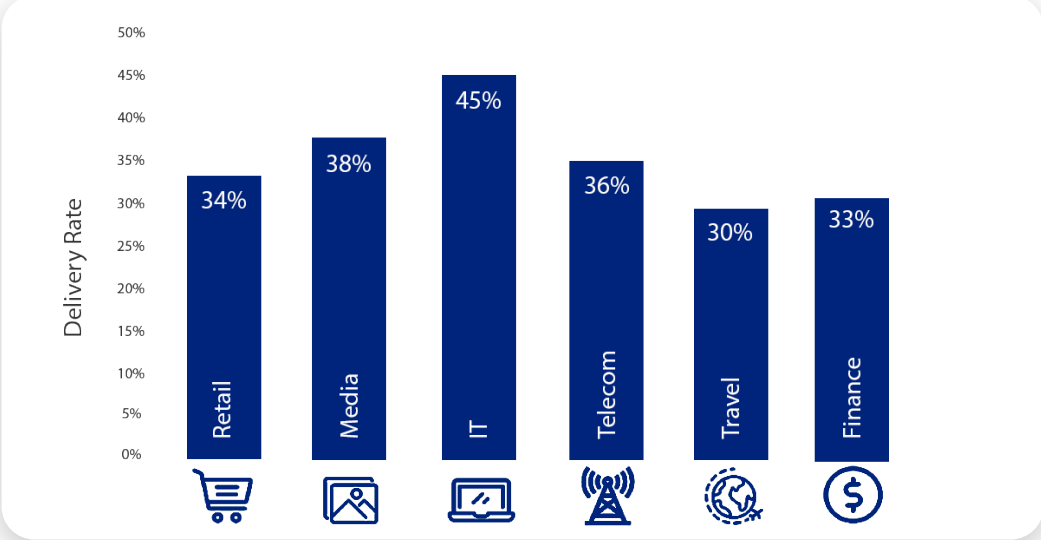
2) Recency and frequency: Depending on usage and activity, the delivery rates are impacted. More the frequency and recency, the more the delivery rate.

3) Last app activity: GCM/FCM doesn't invalidate the tokens of some users who weren't active and have uninstalled the app. This affects the delivery rates.

a) Overall delivery rates
From our analysis across clients from different business verticals (Retail/Media Entertainment/Travel etc.) and geography (India & SEA), we found that delivery rates for All User Campaigns (a broad, unsegmented campaign) were lower and in the range between 14% to 48%.

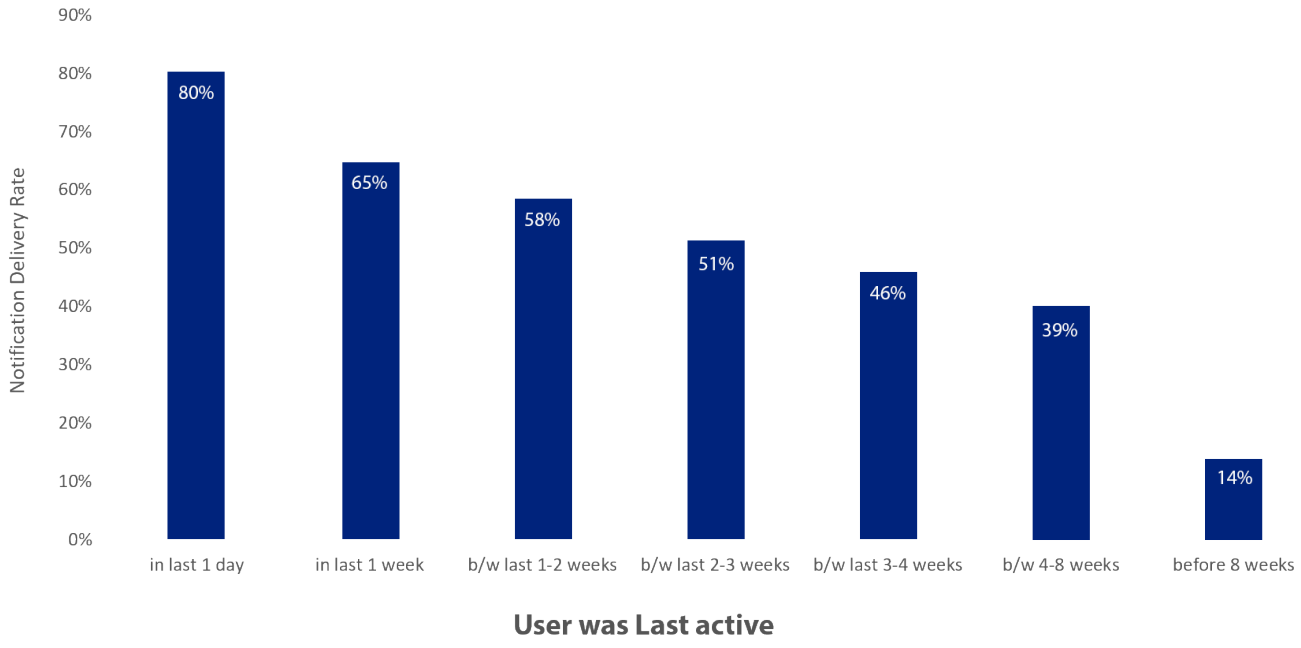


Impact of business vertical on recency and frequency of app usage
Delivery rates vary greatly based on the type of app and its usage. This is primarily because different businesses have different use cases around user's Recency and frequency. Some apps are used more often than others. This has a significant impact on the push notifications delivery rates. For instance, in our study, we found that media and IT apps had better delivery rates compared to others



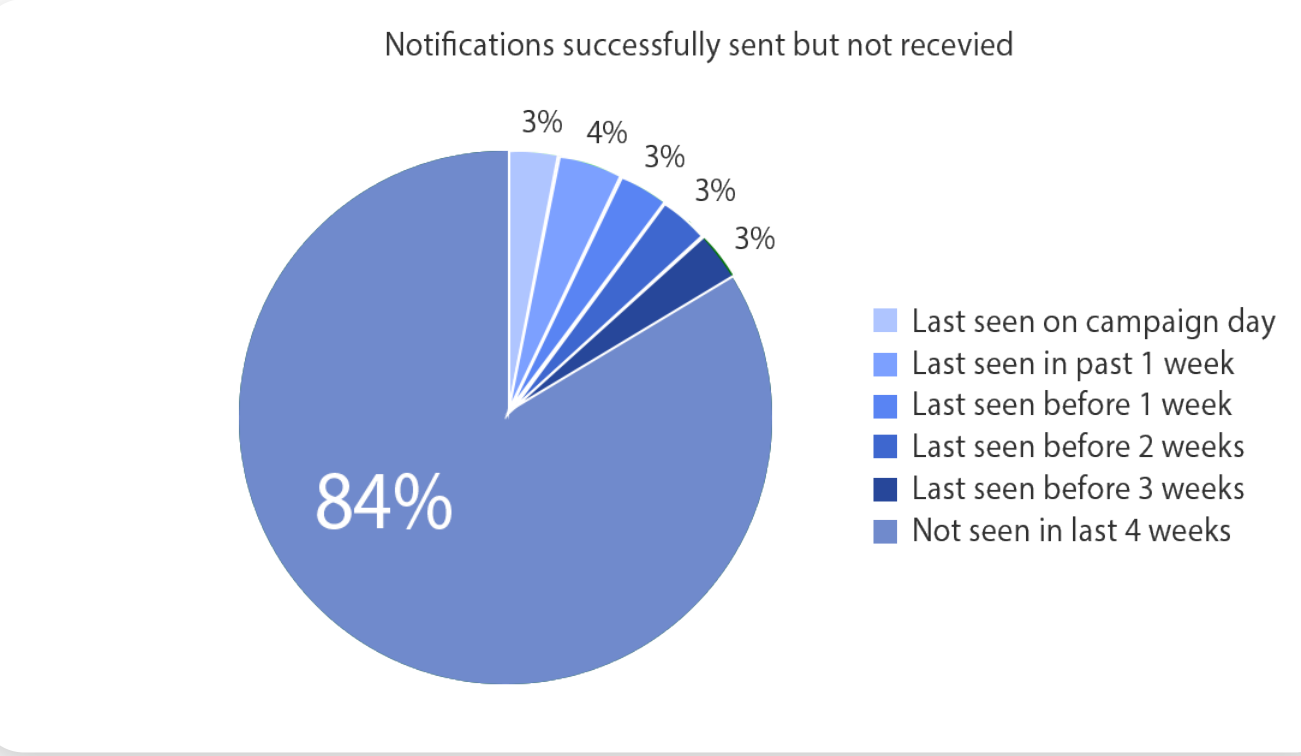
c) Impact of user's last activity on delivery rate

There is a direct correlation between the activity of the user and the push notification delivery rate. The highest delivery rate of over 80% was observed for users who were active in the last 24 hours.

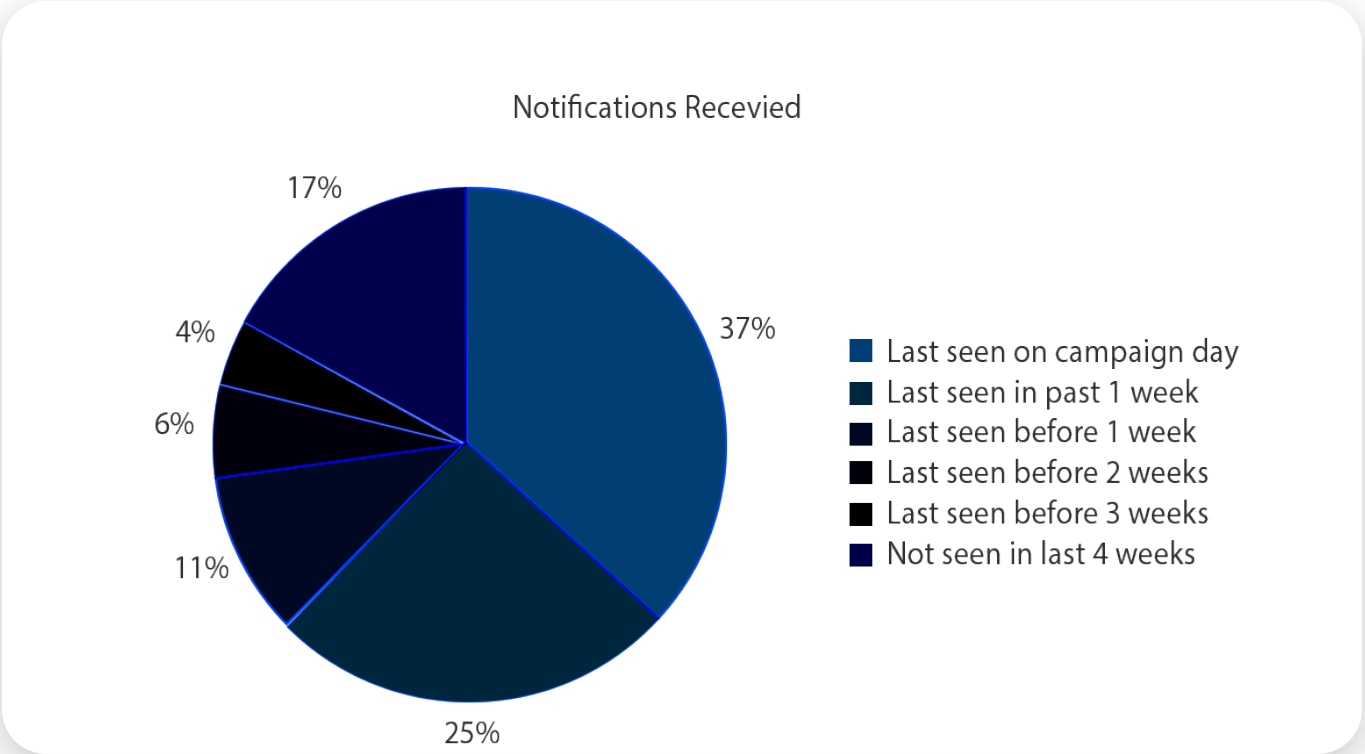


d) As the duration of inactivity increases, reachability decreases

Around 84% of the people who did not receive the notifications were not active for the past 4 weeks. As the duration of inactivity increases, reachability decreases i.e. GCM might not be able to reach and deliver notifications to these users.



e) Recency also increases the reachability
We ran an analysis for users who actually received the notifications which also indicated that recency increases reachability. Of all the people who successfully received the notifications, around 73% were seen active in the past 2 weeks.



How user activity impacts delivery rates

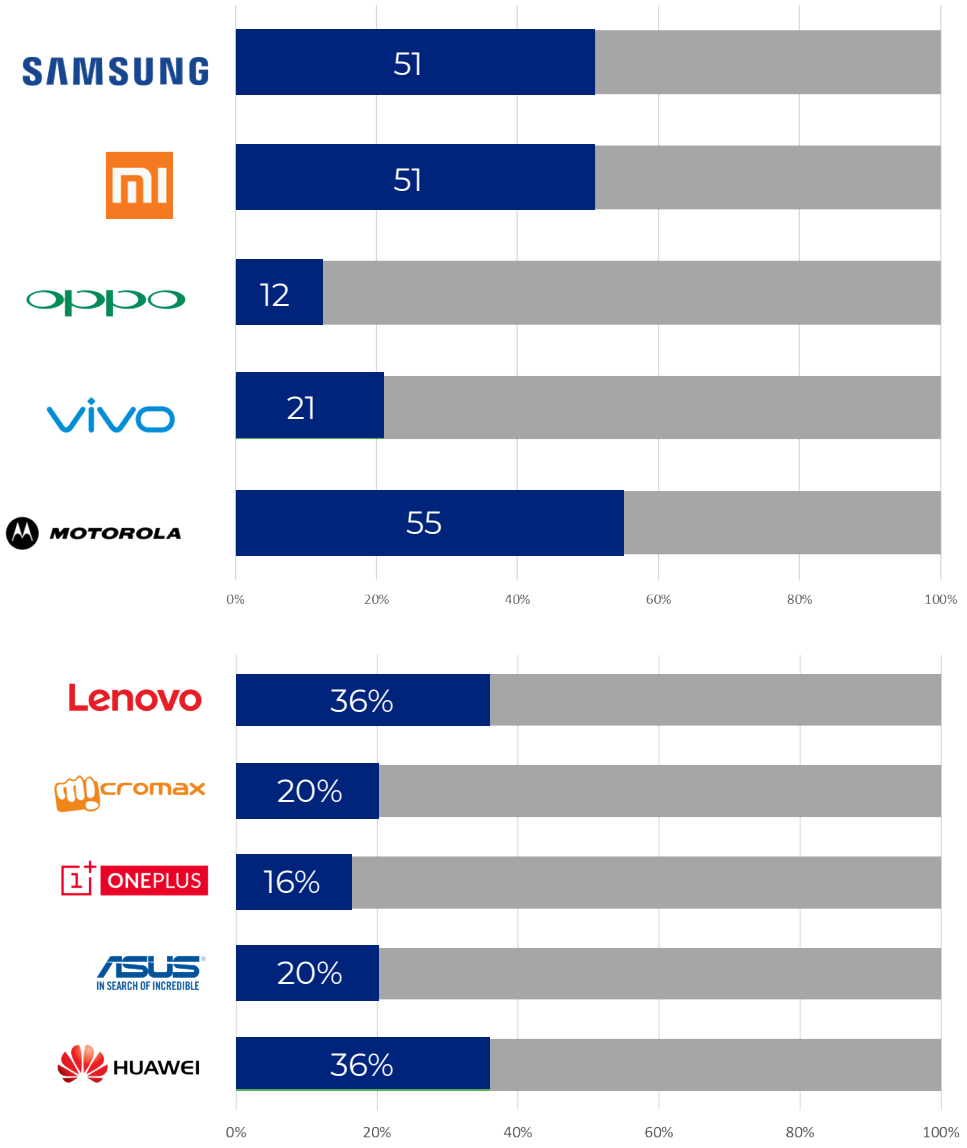
For the study, we analyzed the performance of all campaigns based on location, device model, OS, and network.

1 Device model: OEM factors determine the devices' connectivity to GCM/ Network. We have observed that certain Device Manufacturers like OPPO, VIVO, and OnePlus that use Custom OS have built tighter battery optimizations which in turn cut-off GCM/FCM notification delivery service resulting in no delivery of notifications to those devices.

2 Device OS: Device OS version also controls the parameters like the app running in the background, new support like notification channels that in turn, impacts push delivery.

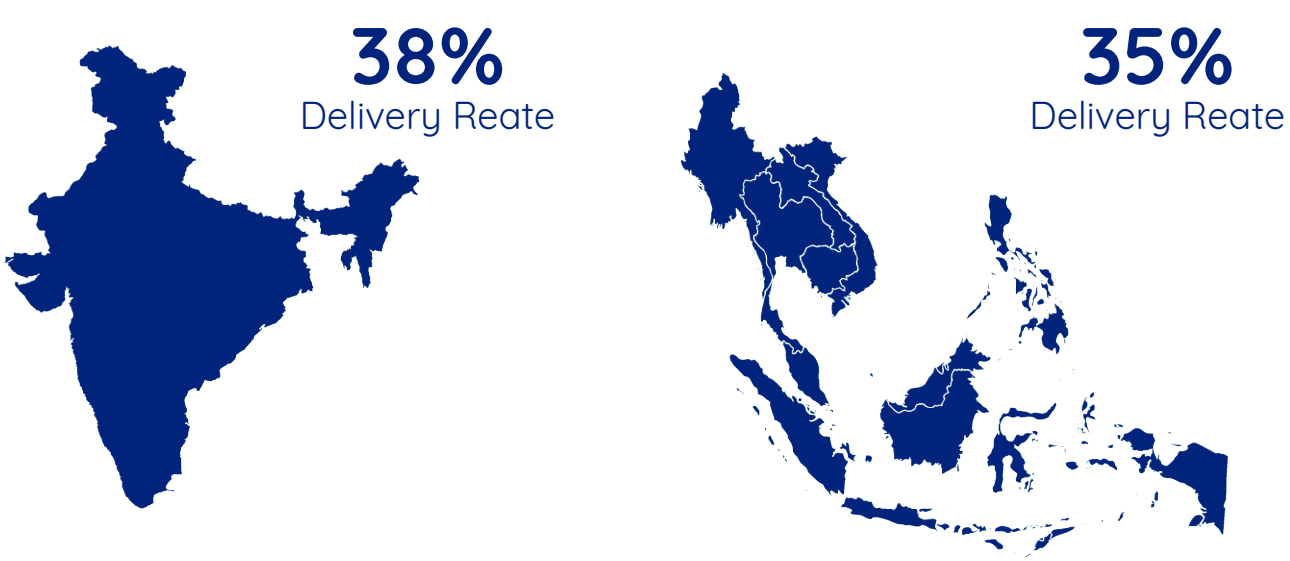
3 Device network: Device network also plays an important role in ensuring that your notification is delivered and at the right time.

a) Impact of device model on delivery rates
Manufactures like Oppo, and Vivo have custom OS on top of the Android. This restricts the background network access to the app, making it difficult to deliver notifications to users of these devices. Other devices like Samsung, Xiaomi, and Motorola have better delivery rates of 51% to 55%.



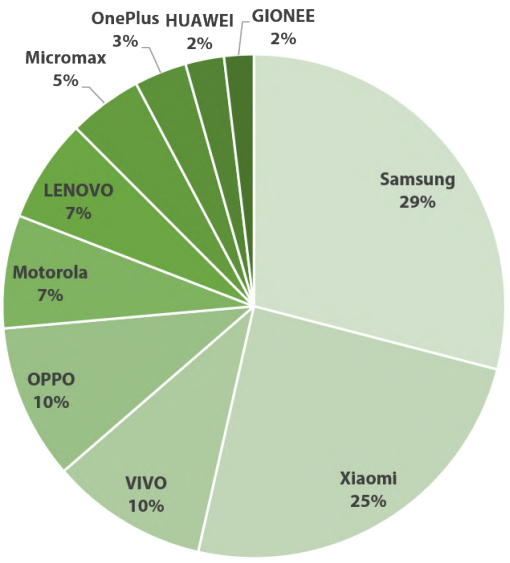
b) Impact of device models on delivery rates across geographies

We also found that certain device models were more popular in certain geographies, thereby affecting the delivery rates in those geographies.

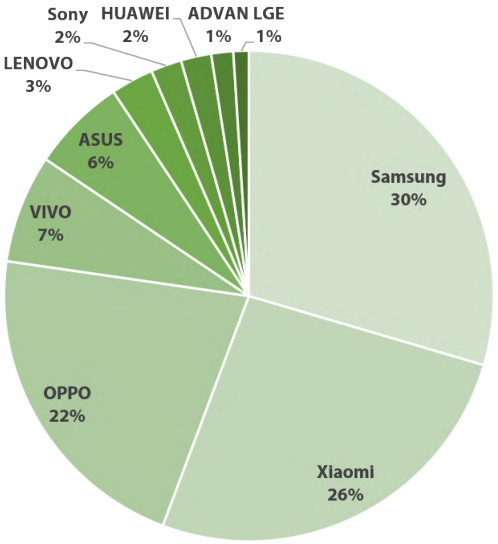


c) Market share of device manufacturers by location

A higher share of OPPO & VIVO probably explains why the delivery rate for SEA is lower than India. Device Manufacturers like OPPO, VIVO, and OnePlus that use Custom OS have built tighter battery optimizations that block push notifications. Delivery Rates in India and SEA differ by around 3% (~10% relative)



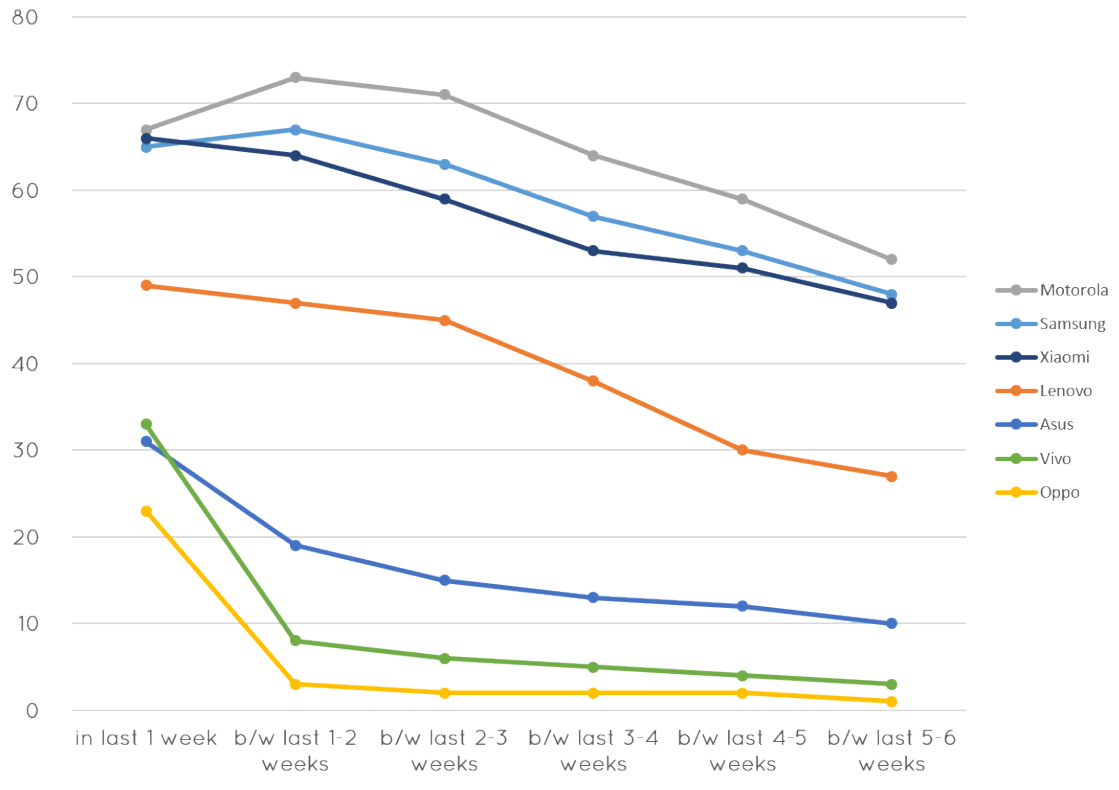
Device share in India



Device share in SEA

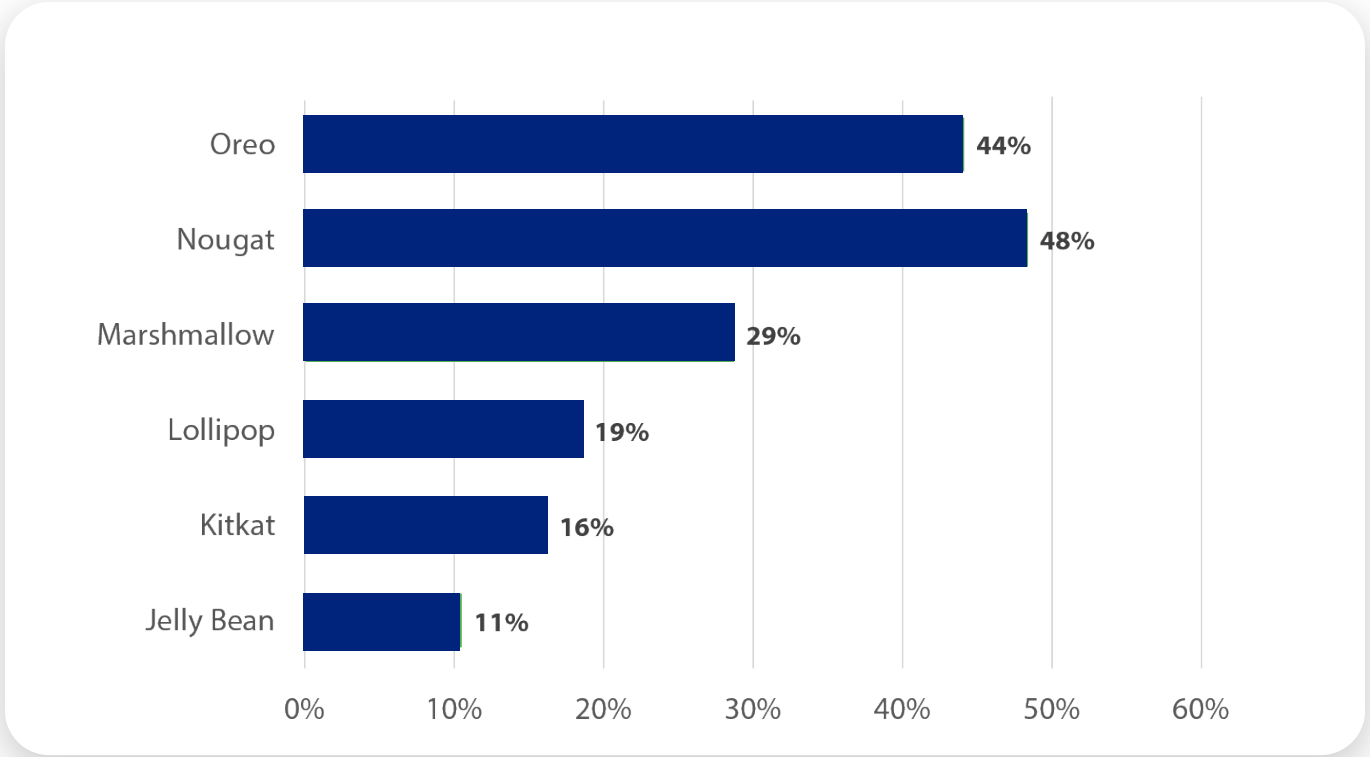
d) Impact of the device model and user's last activity on delivery rates

For all device models, we found that the delivery rates drastically reduced with the user's inactivity on the app.

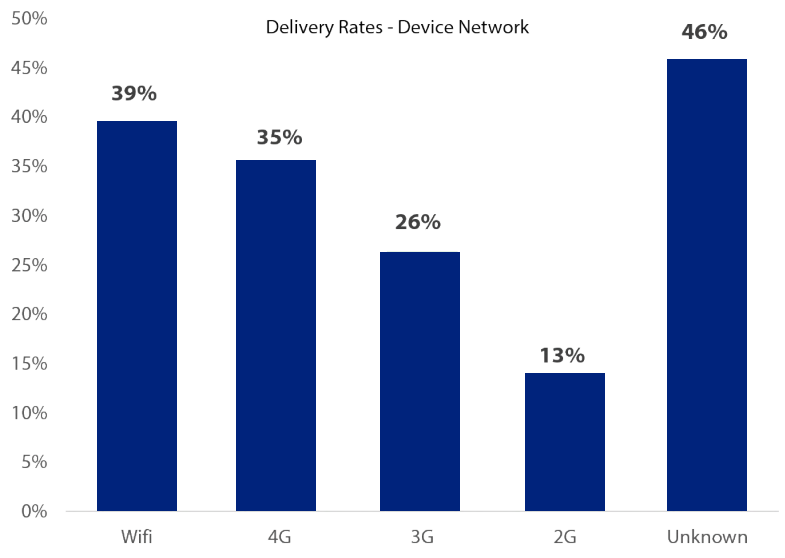


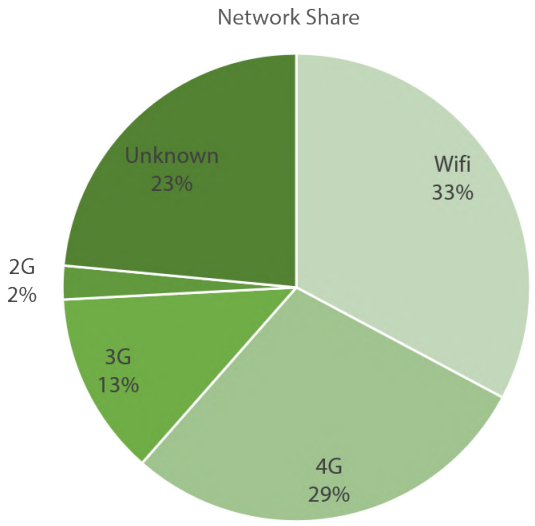
e) Impact of Android OS version on delivery rates
Older OS versions of Android like Lolipop, Kitkat, and Jellybean were found to have lower delivery rates while new versions like Android N have higher delivery rates. Oreo has a low delivery rate due to Google's new OS updates. Android N has the highest delivery rate. Oreo is experiencing low delivery rates due to:

1) Higher battery optimization by OS.
2) Introduction of notification channels.



f) Impact of device network on delivery rates
There is a correlation between network latency and delivery rates. WiFi and 4G have a lesser network latency and a higher delivery rate in comparison to 2G and 3G.





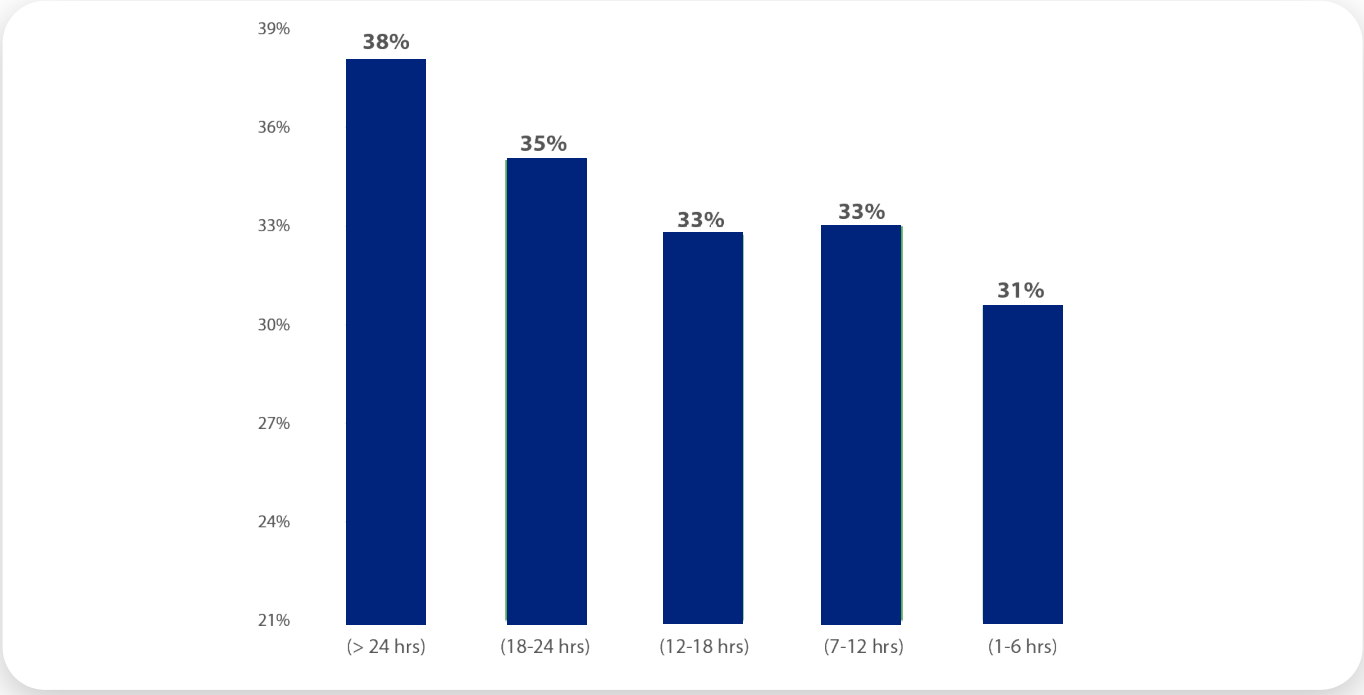
Other factors that impact delivery rates

1) Message's Time To Live (TTL): Higher message TTL allows GCM/FCM to try more times and for a longer duration, during which chances of user coming to network and receiving the notifications increase. Higher the TTL, better the reach and delivery rates.

2) Device Connection State: GCM/ APNS checks if the user device is connected to a network.

3) Campaign Send Time: Campaigns sent at right time allow us to maximize the reach. At the best time, there are high chances that most of your users are connected to the Internet and may even have recently used your app.

a) Impact of campaign Time to Live (TTL) on delivery rates
MoEngage users have access to a field called Campaign Time To Live (TTL) that allows them to set a time frame to deliver a push notification campaign. We found that delivery rates were higher when the TTL time frame was more.



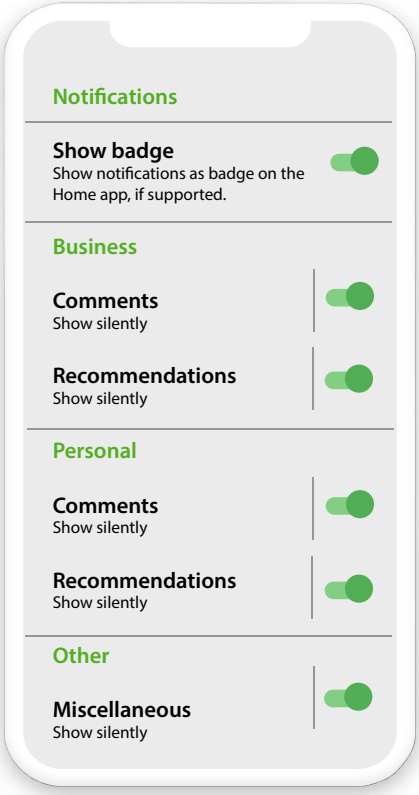
b) Impact of the device connection state on delivery rates
A lot of customers are not connected to the Internet for a long time and hence GCM cannot deliver notifications to them as well cannot mark them inactive. As per Google, nearly 15% of users are not connected to GCM and hence these users may not receive your notifications.

c) Impact of campaign send time on delivery rates
Delivery rates also depend on the time you send out the push notifications. Delivery rates are higher for notifications that are sent when users are most active on the app. This can vary depending on the kind of app and use cases it fits into. Retailers can get better delivery rates with notifications sent around 10 to 11 PM.

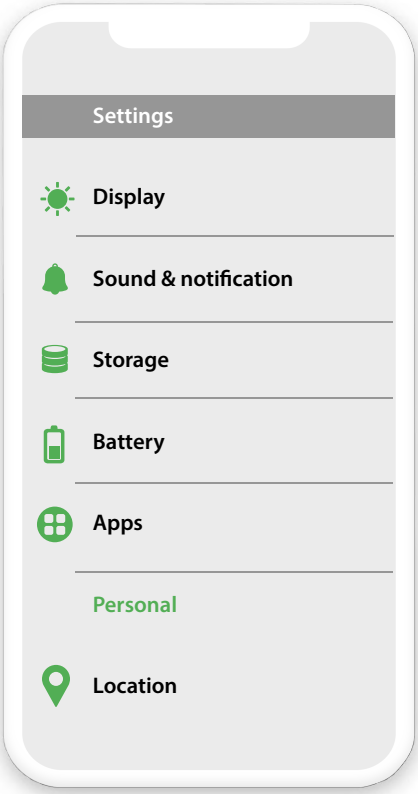
How to improve the delivery rates

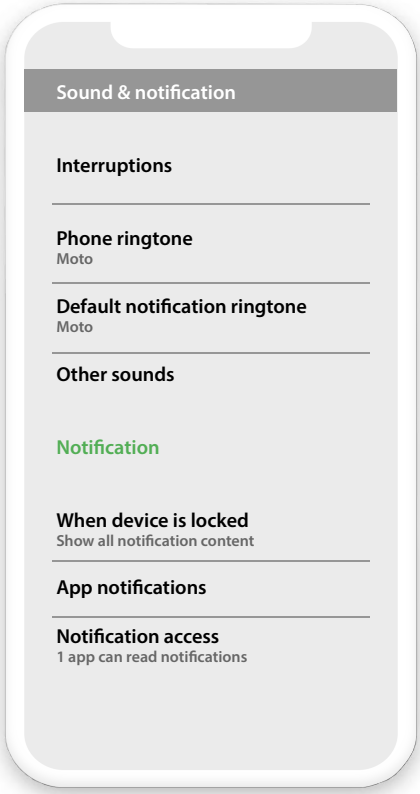
1) Empower users with the choice to opt-in to notifications
2) Send notifications at the right time

1) Empower users with the choice to opt-in to notifications
a) Equip app with notification channels
While the right message at the right time can drive conversions, too many push notifications can push users to disable the app notifications altogether. Push notifications by its nature provide greater control to users over the kind of content they want to see with the option to manage notification settings. Newer versions of Androids like Oreo provide greater control to users in this regard. To allow users to easily manage their notifications, app owners can create notification channels according to the type of notification like specific service alerts etc. This will allow users to opt-in for notifications that interests them rather than opting out



b) Educate users about device-specific notification options
Every device has its own device-specific notification settings that sometimes prevents the delivery of push notifications. Notifications can also be blocked by battery optimizers like Greenify and Cleanmaster. To improve delivery rates, app owners can educate and equip users with the information they need to modify their notification settings accordingly. For Eg. Mygate provides a detailed guide to





2) Send notifications at the right time

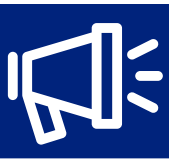
Real-time trigger based notifications can enhance delivery rates greatly. The highest delivery rate of over 98% was observed for campaigns based on real-time triggers that send push notifications to users who intend to exit the app. By giving users messages that are related to their 'micro-moments', marketers can drive more engagement.

Conclusion

With multiple devices, apps, and content all around, getting the attention of today's mobile user is not easy. Through smart push notifications, powered by advanced automation tools companies can drive the attention of consumers back to their app, and boost engagement.

Key takeaways

Upto **45%** CTR observed for push notifications



Users for most industries showed the highest activity between **7am-12pm** on weekends

The ideal word length for push campaigns is less than **15** words.

Delivery rates were highest for users who were active on the app in the last **24** hours

Smart trigger push had greater open rates of up to **50%** than general push notifications.

Segmented campaigns drove engagement by **4X** in comparison to blast campaigns

Personalized campaigns performed **50%** better than non-personalized messages.

Rich push had a higher open rate of up to **60%** in comparison to plain push.

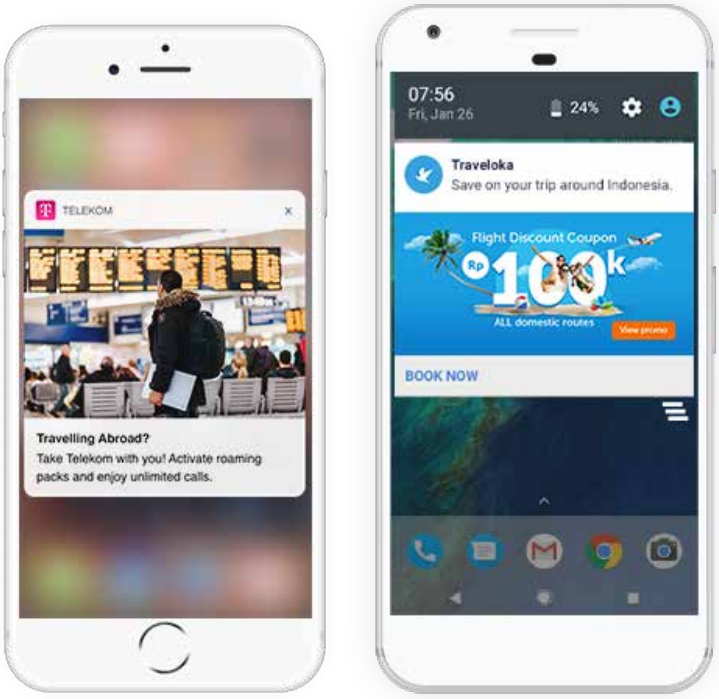
AI-powered multivariate campaigns fared better than general campaigns.

Up to **20%** improvement in delivery rate was observed with push amplification

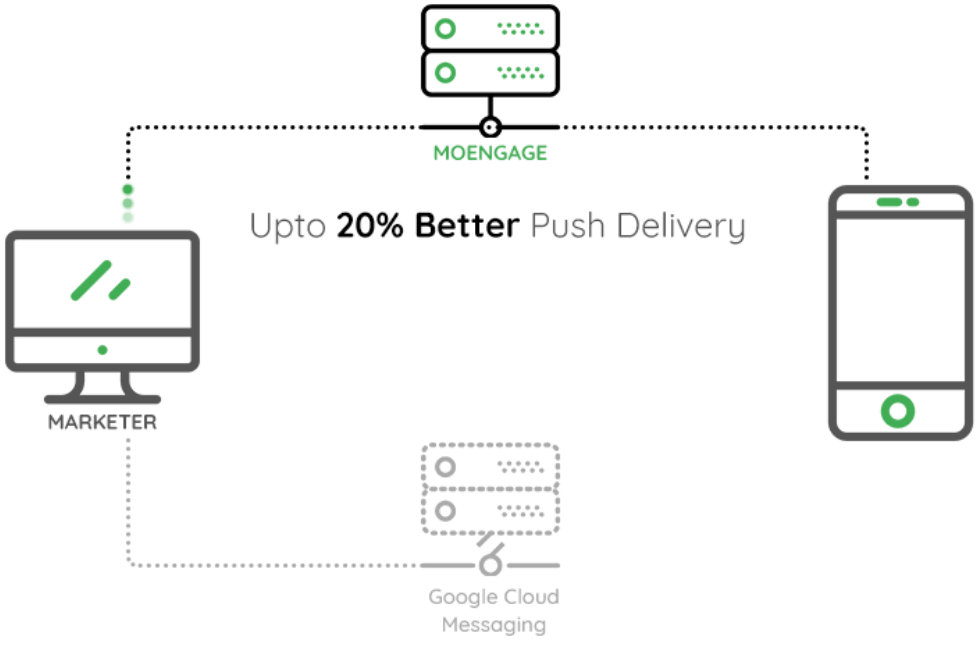
The right push, at the right time, powered by AI

Get Started with MoEngage Push Notifications
Use push notifications for personalized customer engagement to boost sales, reduce churn and occupy mindshare.
With MoEngage, you can:

- Target audiences with powerful segmentation
- Strike a conversation, craft the right message
- Ensure delivery, optimize for conversions and measure impact.



Improve delivery rates by up to 20% with MoEngage Push Amplification
Even though you may not achieve 100% delivery rates, you can still improve your existing delivery rates with push amplification tools like MoEngage Push Amplification. The tool upon detecting the failure in notification delivery acts as a fallback to the GCM and successfully delivers the notification to users. Brands like Bigbasket, Travelz, and Oyo Rooms have witnessed up to **15%** improvement in their push notification delivery with MoEngage Push Amplification.



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About MoEngage

MoEngage is an intelligent marketing cloud, built for the mobile-first world. With AI-powered automation and optimization capabilities, MoEngage enables hyper-personalization at scale across multiple channels like mobile push, email, in-app, web push, and SMS. Fortune **500** brands across **35+** countries such as McAfee, Samsung, and Vodafone use MoEngage to orchestrate their omnichannel campaigns.

350 MILLION + Users analyzed every month
40 BILLION + Events processed every month
1 BILLION + Messages sent every day

Learn more
visit www.moengage.com

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hello@moengage.com